WHAT IS CLAIMED IS:

1. A module for amplifying a signal light with a remote excitation-light, comprising:

(a) a first optical input/output line through which a signal light is transmitted;

(b) a second optical input/output line through which a signal light is transmitted;

(c) an optical amplifier which amplifies a signal light on receipt of an excitation light transmitted through said first or second optical input/output line;

(d) a bypass circuit which allows said signal light to bypass said optical amplifier;

(e) a first optical connector which optically connects said first optical input/output line to said optical amplifier, and further optically connects said first optical input/output line to said bypass circuit; and

(f) a second optical connector which optically connects said second optical input/output line to said optical amplifier, and further optically connects said second optical input/output line to said bypass circuit.

2. The module as set forth in claim 1, wherein said first optical connector is comprised of a first optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports,

said second optical connector is comprised of a second optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light

input through said third port is not output through any ports,

said first optical 3-port circulator is optically connected at its second port to said first optical input/output line, at its third port to said optical amplifier, and at its first port to said bypass circuit, and

said second optical 3-port circulator is optically connected at its second port to said second optical input/output line, at its third port to said bypass circuit, and at its first port to said optical amplifier.

3. The module as set forth in claim 1, wherein said first optical connector is comprised of a first optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output,

said second optical connector is comprised of a second optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output,

said first optical filter is optically connected at its second port to said first optical input/output line, at its third port to said optical amplifier, and at its first port to said bypass circuit, and

said second optical filter is optically connected at its second port to said second optical input/output line, at its third port to said optical amplifier, and at its first port to said bypass circuit.

4. The module as set forth in claim 1, wherein said first optical connector is comprised of a first optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output,

said second optical connector is comprised of a second optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output,

said first optical filter is optically connected at its second port to said first optical input/output line, at its third port to said bypass circuit, and at its first port to said optical amplifier, and

said second optical filter is optically connected at its second port to said second optical input/output line, at its third port to said bypass circuit, and at its first port to said optical amplifier.

5. The module as set forth in claim 2, wherein said bypass circuit has the same structure as that of said optical amplifier.

6. The module as set forth in claim 1, wherein said first optical connector, said second optical connector and said bypass circuit are comprised of an optical 4-port circulator having first, second, third and fourth ports wherein a signal

light input through said third port is output through said fourth port, a signal light input through said first port is output through said second port, a signal light input through said second port is output through said third port, and a signal light input through said fourth port is not output through any ports, and

said optical 4-port circular is optically connected at its third port to said first optical input/output line, at its fourth port to said optical amplifier at one end thereof, at its first port to said optical amplifier at the other end thereof, and at its second port to said second optical input/output line.

7. The module as set forth in claim 1, wherein said optical amplifier includes optically amplifying medium comprised of an optical fiber into which rare earth element is doped.

8. The module as set forth in claim 1, wherein said excitation light to be transmitted to said optical amplifier is one of a forward excitation light and a backward excitation light.

9. The module as set forth in claim 1, further comprising at least one optical isolator, and at least one device for compensating for optical dispersion, both arranged between said optical amplifier and at least one of said first and second optical connectors.

10. A module for amplifying a signal light with a remote excitation-light, comprising:

(a) a first optical input/output line through which a signal light is transmitted;

(b) a second optical input/output line through which a signal light is transmitted;

(c) a first optical 3-port circulator having first, second and third ports

wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports;

(d) a second optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports;

(e) an optical amplifier which amplifies a signal light on receipt of an excitation light transmitted through said first or second optical input/output line;

(f) a first bypass circuit which allows said signal light to bypass said optical amplifier;

(g) a first optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output;

(h) a second optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output; and

(i) a second bypass circuit which allows said signal light to bypass said optical amplifier,

wherein said first optical 3-port circulator is optically connected at its second port to said first optical input/output line, at its third port to said first optical filter, and at its first port to said first bypass circuit,

said second optical 3-port circulator is optically connected at its second port to said second optical input/output line, at its third port to said first bypass circuit, and at its first port to said second optical filter,

said first optical filter is optically connected at its second port to said first optical 3-port circulator, at its third port to said optical amplifier, and at its first port to said second bypass circuit, and

said second optical filter is optically connected at its second port to said second optical 3-port calculator, at its third port to said optical amplifier, and at its first port to said second bypass circuit.

11. The module as set forth in claim 10, wherein said optical amplifier includes optically amplifying medium comprised of an optical fiber into which rare earth element is doped.

12. The module as set forth in claim 10, wherein said excitation light to be transmitted to said optical amplifier is one of a forward excitation light and a backward excitation light.

13. The module as set forth in claim 10, further comprising at least one optical isolator, and at least one device for compensating for optical dispersion, both arranged between said optical amplifier and at least one of said first and second optical filters.

14. A module for amplifying a signal light with a remote excitation-light, comprising:

(a) a first optical input/output line through which a signal light is

transmitted;

(b) a second optical input/output line through which a signal light is transmitted;

(c) a first optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports;

(d) a second optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports;

(e) an optical amplifier which amplifies a signal light on receipt of an excitation light transmitted through said first or second optical input/output line;

(f) a first bypass circuit which allows said signal light to bypass said optical amplifier;

(g) a first optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output;

(h) a second optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and

output, and said first port is a port through which a signal light having said second wavelength band is input and output; and

(i) a second bypass circuit which allows said signal light to bypass said optical amplifier,

wherein said first optical 3-port circulator is optically connected at its second port to said first optical input/output line, at its third port to said first optical filter, and at its first port to said first bypass circuit,

said second optical 3-port circulator is optically connected at its second port to said second optical input/output line, at its third port to said first bypass circuit, and at its first port to said second optical filter,

said first optical filter is optically connected at its second port to said first optical 3-port circulator, at its first port to said optical amplifier, and at its third port to said second bypass circuit, and

said second optical filter is optically connected at its second port to said second optical 3-port calculator, at its first port to said optical amplifier, and at its third port to said second bypass circuit.

15. The module as set forth in claim 14, wherein said optical amplifier includes optically amplifying medium comprised of an optical fiber in which rare earth element is doped.

16. The module as set forth in claim 14, wherein said excitation light to be transmitted to said optical amplifier is one of a forward excitation light and a backward excitation light.

17. The module as set forth in claim 14, further comprising at least one optical isolator, and at least one device for compensating for optical dispersion, both arranged between said optical amplifier and at least one of said first and second optical filters.

18. A module for amplifying a signal light with a remote excitation-light, comprising:

(a) a first optical input/output line through which a signal light is transmitted;

(b) a second optical input/output line through which a signal light is transmitted;

(c) a first optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports;

(d) a second optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports;

(e) a first optical amplifier which amplifies a signal light on receipt of an excitation light transmitted through said first or second optical input/output line;

(f) a first bypass circuit which allows said signal light to bypass said first optical amplifier;

(g) a first optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output,

(h) a second optical filter having first, second and third ports wherein said

second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band; combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output,

(i) a second optical amplifier which amplifies a signal light on receipt of an excitation light transmitted through said first or second optical input/output line;

(j) a second bypass circuit which allows said signal light to bypass said second optical amplifier;

(k) a third optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output; and

(l) a fourth optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output,

wherein said first optical 3-port circulator is optically connected at its second port to said first optical input/output line, at its third port to said first optical filter, and at its first port to said fourth optical filter,

said second optical 3-port circulator is optically connected at its second port to said second optical input/output line, at its third port to said third optical filter,

and at its first port to said second optical filter,

said first optical filter is optically connected at its second port to said first optical 3-port circulator, at its third port to said first optical amplifier, and at its first port to said first bypass circuit, and

said second optical filter is optically connected at its second port to said second optical 3-port circulator, at its third port to said third optical filter, and at its first port to said first bypass filter,

said third optical filter is optically connected at its second port to said second optical 3-port circulator, at its first port to said second optical amplifier, and at its third port to said second bypass circuit, and

said fourth optical filter is optically connected at its second port to said first optical 3-port calculator, at its first port to said second optical amplifier, and at its third port to said second bypass circuit.

19. The module as set forth in claim 18, wherein said optical amplifier includes optically amplifying medium comprised of an optical fiber into which rare earth element is doped.

20. The module as set forth in claim 18, wherein said excitation light to be transmitted to said optical amplifier is one of a forward excitation light and a backward excitation light.

21. The module as set forth in claim 18, further comprising at least one optical isolator, and at least one device for compensating for optical dispersion, both arranged between said first optical amplifier and at least one of said first and second optical connectors and/or between said second optical amplifier and at least one of said third and fourth optical connectors.

22. A module for amplifying a signal light with a remote excitation-light,

comprising:

(a) a first optical input/output line through which a signal light is transmitted;

(b) a second optical input/output line through which a signal light is transmitted;

(c) a first optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said first port, a signal light input through said third port is output through said second port, and a signal light input through said first port is not output through any ports;

(d) a second optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said first port, a signal light input through said third port is output through said second port, and a signal light input through said first port is not output through any ports;

(e) an optical amplifier which amplifies a signal light on receipt of an excitation light transmitted through said first or second optical input/output line;

(f) a first bypass circuit which allows said signal light to bypass said optical amplifier;

(g) a first optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said first port is a port through which a signal light having said first wavelength band is input and output, and said third port is a port through which a signal light having said second wavelength band is input and output;

(h) a second optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength

band, combined to each other, is input and output, said first port is a port through which a signal light having said first wavelength band is input and output, and said third port is a port through which a signal light having said second wavelength band is input and output; and

(i) a second bypass circuit which allows said signal light to bypass said optical amplifier,

wherein said first optical 3-port circulator is optically connected at its second port to said second optical input/output line, at its third port to said second optical filter, and at its first port to said first bypass circuit,

said second optical 3-port circulator is optically connected at its second port to said first optical input/output line, at its third port to said first bypass circuit, and at its first port to said first optical filter,

said first optical filter is optically connected at its second port to said second optical 3-port circulator, at its third port to said second bypass circuit, and at its first port to said optical amplifier, and

said second optical filter is optically connected at its second port to said first optical 3-port calculator, at its third port to said second bypass circuit, and at its first port to said optical amplifier.

23. A module for amplifying a signal light with a remote excitation-light, comprising:

(a) a first optical input/output line through which a signal light is transmitted;

(b) a second optical input/output line through which a signal light is transmitted;

(c) a first optical amplifier which amplifies a signal light on receipt of an excitation light transmitted through said first or second optical input/output line;

(d) a second optical amplifier which amplifies a signal light on receipt of an excitation light transmitted through said first or second optical input/output line;

(e) a first optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports; and

(f) a second optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports,

said first optical 3-port circulator is optically connected at its second port to said first optical input/output line, at its third port to said first optical amplifier, and at its first port to said second optical amplifier, and

said second optical 3-port circulator is optically connected at its second port to said second optical input/output line, at its third port to said second optical amplifier, and at its first port to said first optical amplifier.

24. An optical-fiber communication system allowing first and second sites to make optical communication therebetween, comprising:

(a) at least one module for amplifying a signal light with a remote excitation-light;

(b) a first optical fiber optically connecting said module to said first site; and

(c) a second optical fiber optically connecting said module to said second site,

said module comprising:

(a) a first optical input/output line through which a signal light is transmitted;

(b) a second optical input/output line through which a signal light is transmitted;

(c) an optical amplifier which amplifies a signal light on receipt of an

excitation light transmitted through said first or second optical input/output line;

(d) a bypass circuit which allows said signal light to bypass said optical amplifier;

(e) a first optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports; and

(f) a second optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports,

wherein said first optical 3-port circulator is optically connected at its second port to said first optical input/output line, at its third port to said optical amplifier, and at its first port to said bypass circuit,

said second optical 3-port circulator is optically connected at its second port to said second optical input/output line, at its third port to said bypass circuit, and at its first port to said optical amplifier,

said first optical input/output line is optically connected to said first optical fiber, and

said second optical input/output line is optically connected to said second optical fiber.

25. An optical-fiber communication system allowing first and second sites to make optical communication therebetween, comprising:

(a) at least one module for amplifying a signal light with a remote excitation-light;

(b) a first optical fiber optically connecting said module to said first site; and

(c) a second optical fiber optically connecting said module to said second site, said module comprising:

(a) a first optical input/output line through which a signal light is transmitted;

(b) a second optical input/output line through which a signal light is transmitted;

(c) a first optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports;

(d) a second optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports;

(e) an optical amplifier which amplifies a signal light on receipt of an excitation light transmitted through said first or second optical input/output line;

(f) a first bypass circuit which allows said signal light to bypass said optical amplifier;

(g) a first optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output;

(h) a second optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light

having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output; and

(i) a second bypass circuit which allows said signal light to bypass said optical amplifier,

wherein said first optical 3-port circulator is optically connected at its second port to said first optical input/output line, at its third port to said first optical filter, and at its first port to said first bypass circuit,

said second optical 3-port circulator is optically connected at its second port to said second optical input/output line, at its third port to said first bypass circuit, and at its first port to said second optical filter,

said first optical filter is optically connected at its second port to said first optical 3-port circulator, at its third port to said optical amplifier, and at its first port to said second bypass circuit, and

said second optical filter is optically connected at its second port to said second optical 3-port calculator, at its third port to said optical amplifier, and at its first port to said second bypass circuit.

26. An optical-fiber communication system allowing first and second sites to make optical communication therebetween, comprising:

(a) at least one module for amplifying a signal light with a remote excitation-light;

(b) a first optical fiber optically connecting said module to said first site; and

(c) a second optical fiber optically connecting said module to said second site,

said module comprising:

(a) a first optical input/output line through which a signal light is transmitted;

(b) a second optical input/output line through which a signal light is transmitted;

(c) a first optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports;

(d) a second optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports;

(e) an optical amplifier which amplifies a signal light on receipt of an excitation light transmitted through said first or second optical input/output line;

(f) a first bypass circuit which allows said signal light to bypass said optical amplifier;

(g) a first optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output;

(h) a second optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said

second wavelength band is input and output; and

(i) a second bypass circuit which allows said signal light to bypass said optical amplifier,

wherein said first optical 3-port circulator is optically connected at its second port to said first optical input/output line, at its third port to said first optical filter, and at its first port to said first bypass circuit,

said second optical 3-port circulator is optically connected at its second port to said second optical input/output line, at its third port to said first bypass circuit, and at its first port to said second optical filter,

said first optical filter is optically connected at its second port to said first optical 3-port circulator, at its first port to said optical amplifier, and at its third port to said second bypass circuit, and

said second optical filter is optically connected at its second port to said second optical 3-port calculator, at its first port to said optical amplifier, and at its third port to said second bypass circuit.

27. An optical-fiber communication system allowing first and second sites to make optical communication therebetween, comprising:

(a) at least one module for amplifying a signal light with a remote excitation-light;

(b) a first optical fiber optically connecting said module to said first site; and

(c) a second optical fiber optically connecting said module to said second site,

said module comprising:

(a) a first optical input/output line through which a signal light is transmitted;

(b) a second optical input/output line through which a signal light is transmitted;

(c) a first optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said

third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports;

(d) a second optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports;

(e) a first optical amplifier which amplifies a signal light on receipt of an excitation light transmitted through said first or second optical input/output line;

(f) a first bypass circuit which allows said signal light to bypass said first optical amplifier;

(g) a first optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output,

(h) a second optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output,

(i) a second optical amplifier which amplifies a signal light on receipt of an excitation light transmitted through said first or second optical input/output line;

(j) a second bypass circuit which allows said signal light to bypass said

second optical amplifier;

(k) a third optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output; and

(l) a fourth optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output,

wherein said first optical 3-port circulator is optically connected at its second port to said first optical input/output line, at its third port to said first optical filter, and at its first port to said fourth optical filter,

said second optical 3-port circulator is optically connected at its second port to said second optical input/output line, at its third port to said third optical filter, and at its first port to said second optical filter,

said first optical filter is optically connected at its second port to said first optical 3-port circulator, at its third port to said first optical amplifier, and at its first port to said first bypass circuit,

said second optical filter is optically connected at its second port to said second optical 3-port circulator, at its third port to said third optical filter, and at its first port to said first bypass filter,

said third optical filter is optically connected at its second port to said second optical 3-port circulator, at its first port to said second optical amplifier,

and at its third port to said second bypass circuit, and

said fourth optical filter is optically connected at its second port to said first optical 3-port calculator, at its first port to said second optical amplifier, and at its third port to said second bypass circuit.

28. An optical-fiber communication system allowing first and second sites to make optical communication therebetween, comprising:

(a) a first module for amplifying a signal light with a remote excitation-light, located at a first site; and

(b) a second module for amplifying a signal light with a remote excitation-light, located at a second site, said second module having the same structure as that of said first module,

said first module comprising:

(a) a first optical input/output line through which a signal light is transmitted;

(b) a second optical input/output line through which a signal light is transmitted;

(c) an optical amplifier which amplifies a signal light on receipt of an excitation light transmitted through said first or second optical input/output line;

(d) a bypass circuit which allows said signal light to bypass said optical amplifier;

(e) a first optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports; and

(f) a second optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said

second port, and a signal light input through said third port is not output through any ports,

wherein said first optical 3-port circulator is optically connected at its second port to said first optical input/output line, at its third port to said optical amplifier, and at its first port to said bypass circuit,

said second optical 3-port circulator is optically connected at its second port to said second optical input/output line, at its third port to said bypass circuit, and at its first port to said optical amplifier,

said first optical input/output line is optically connected to said first optical fiber, and

said second optical input/output line is optically connected to said second optical fiber,

wherein said first optical input/output line of said first module is optically connected to said first optical input/output line of said second module through a first optical fiber,

said second optical input/output line of said first module is optically connected to said first site through a second optical fiber, and

said second optical input/output line of said second module is optically connected to said second site through a third optical fiber.

29. An optical-fiber communication system allowing first and second sites to make optical communication therebetween, comprising:

(a) a first module for amplifying a signal light with a remote excitation-light, located at a first site; and

(b) a second module for amplifying a signal light with a remote excitation-light, located at a second site, said second module having the same structure as that of said first module,

said first module comprising:

(a) a first optical input/output line through which a signal light is

transmitted;

(b) a second optical input/output line through which a signal light is transmitted;

(c) a first optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports;

(d) a second optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports;

(e) an optical amplifier which amplifies a signal light on receipt of an excitation light transmitted through said first or second optical input/output line;

(f) a first bypass circuit which allows said signal light to bypass said optical amplifier;

(g) a first optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output;

(h) a second optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and

output, and said first port is a port through which a signal light having said second wavelength band is input and output; and

(i) a second bypass circuit which allows said signal light to bypass said optical amplifier,

wherein said first optical 3-port circulator is optically connected at its second port to said first optical input/output line, at its third port to said first optical filter, and at its first port to said first bypass circuit,

said second optical 3-port circulator is optically connected at its second port to said second optical input/output line, at its third port to said first bypass circuit, and at its first port to said second optical filter,

said first optical filter is optically connected at its second port to said first optical 3-port circulator, at its third port to said optical amplifier, and at its first port to said second bypass circuit, and

said second optical filter is optically connected at its second port to said second optical 3-port calculator, at its third port to said optical amplifier, and at its first port to said second bypass circuit,

wherein said first optical input/output line of said first module is optically connected to said first optical input/output line of said second module through a first optical fiber,

said second optical input/output line of said first module is optically connected to said first site through a second optical fiber, and

said second optical input/output line of said second module is optically connected to said second site through a third optical fiber.

30. An optical-fiber communication system allowing first and second sites to make optical communication therebetween, comprising:

(a) a first module for amplifying a signal light with a remote excitation-light, located at a first site; and

(b) a second module for amplifying a signal light with a remote

excitation-light, located at a second site, said second module having the same structure as that of said first module,

said first module comprising:

(a) a first optical input/output line through which a signal light is transmitted;

(b) a second optical input/output line through which a signal light is transmitted;

(c) a first optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports;

(d) a second optical 3-port circulator having first, second and third ports wherein a signal light input through said second port is output through said third port, a signal light input through said first port is output through said second port, and a signal light input through said third port is not output through any ports;

(e) an optical amplifier which amplifies a signal light on receipt of an excitation light transmitted through said first or second optical input/output line;

(f) a first bypass circuit which allows said signal light to bypass said optical amplifier;

(g) a first optical filter having first, second and third ports wherein said second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output;

(h) a second optical filter having first, second and third ports wherein said

second port is a port through which a signal light comprised of a signal light having a first wavelength band and a signal light having a second wavelength band, combined to each other, is input and output, said third port is a port through which a signal light having said first wavelength band is input and output, and said first port is a port through which a signal light having said second wavelength band is input and output; and

(i) a second bypass circuit which allows said signal light to bypass said optical amplifier,

wherein said first optical 3-port circulator is optically connected at its second port to said first optical input/output line, at its third port to said first optical filter, and at its first port to said first bypass circuit,

said second optical 3-port circulator is optically connected at its second port to said second optical input/output line, at its third port to said first bypass circuit, and at its first port to said second optical filter,

said first optical filter is optically connected at its second port to said first optical 3-port circulator, at its first port to said optical amplifier, and at its third port to said second bypass circuit, and

said second optical filter is optically connected at its second port to said second optical 3-port calculator, at its first port to said optical amplifier, and at its third port to said second bypass circuit,

wherein said first optical input/output line of said first module is optically connected to said first optical input/output line of said second module through a first optical fiber,

said second optical input/output line of said first module is optically connected to said first site through a second optical fiber, and

said second optical input/output line of said second module is optically connected to said second site through a third optical fiber.

31. An optical-fiber communication system allowing first and second sites to

make optical communication therebetween, comprising:

(a) a first module for amplifying a signal light with a remote excitation-light, located at a first site; and

(b) a second module for amplifying a signal light with a remote excitation-light, located at a second site,

wherein said first module is selected from a group consisting of modules defined in claims 3 and 10-13,

said second module is selected from a group consisting of modules defined in claims 4 and 14-17,

said first optical input/output line of said first module is optically connected to said first optical input/output line of said second module through a first optical fiber,

said second optical input/output line of said first module is optically connected to said first site through a second optical fiber, and

said second optical input/output line of said second module is optically connected to said second site through a third optical fiber.

32. The optical-fiber communication system as set forth in claim 24, wherein said module further includes at least one optical isolator, and at least one device for compensating for optical dispersion, both arranged between said optical amplifier and at least one of said first and second optical connectors, and

dispersion compensation in said device is equal to smaller one of first and second factors wherein said first factor is defined as wavelength dispersion stored in a signal light in said first and second optical fibers, with an error of about 10%, and said second factor is defined as compensation provided by a dispersion-compensation device having optical loss equal to or smaller than a gain of said module.

33. The optical-fiber communication system as set forth in claim 25, wherein

said module further includes at least one optical isolator, and at least one device for compensating for optical dispersion, both arranged between said optical amplifier and at least one of said first and second optical connectors, and

dispersion compensation in said device is equal to smaller one of first and second factors wherein said first factor is defined as wavelength dispersion stored in a signal light in said first and second optical fibers, with an error of about 10%, and said second factor is defined as compensation provided by a dispersion-compensation device having optical loss equal to or smaller than a gain of said module.

34. The optical-fiber communication system as set forth in claim 26, wherein said module further includes at least one optical isolator, and at least one device for compensating for optical dispersion, both arranged between said optical amplifier and at least one of said first and second optical connectors, and

dispersion compensation in said device is equal to smaller one of first and second factors wherein said first factor is defined as wavelength dispersion stored in a signal light in said first and second optical fibers, with an error of about 10%, and said second factor is defined as compensation provided by a dispersion-compensation device having optical loss equal to or smaller than a gain of said module.

35. The optical-fiber communication system as set forth in claim 27, wherein said module further includes at least one optical isolator, and at least one device for compensating for optical dispersion, both arranged between said first optical amplifier and at least one of said first and second optical connectors and/or between said second optical amplifier and at least one of said third and fourth optical connectors, and

dispersion compensation in said device is equal to smaller one of first and second factors wherein said first factor is defined as wavelength dispersion stored

in a signal light in said first and second optical fibers, with an error of about 10%, and said second factor is defined as compensation provided by a dispersion-compensation device having optical loss equal to or smaller than a gain of said module.

36. The optical-fiber communication system as set forth in claim 28, wherein said first module further includes at least one optical isolator, and at least one device for compensating for optical dispersion, both arranged between said optical amplifier and at least one of said first and second optical connectors, and

dispersion compensation in said device is equal to smaller one of first and second factors wherein said first factor is defined as wavelength dispersion stored in a signal light in said first and second optical fibers, with an error of about 10%, and said second factor is defined as compensation provided by a dispersion-compensation device having optical loss equal to or smaller than a gain of said module.

37. The optical-fiber communication system as set forth in claim 29, wherein said first module further includes at least one optical isolator, and at least one device for compensating for optical dispersion, both arranged between said optical amplifier and at least one of said first and second optical connectors, and

dispersion compensation in said device is equal to smaller one of first and second factors wherein said first factor is defined as wavelength dispersion stored in a signal light in said first and second optical fibers, with an error of about 10%, and said second factor is defined as compensation provided by a dispersion-compensation device having optical loss equal to or smaller than a gain of said module.

38. The optical-fiber communication system as set forth in claim 30, wherein said first module further includes at least one optical isolator, and at least one

device for compensating for optical dispersion, both arranged between said optical amplifier and at least one of said first and second optical connectors, and

dispersion compensation in said device is equal to smaller one of first and second factors wherein said first factor is defined as wavelength dispersion stored in a signal light in said first and second optical fibers, with an error of about 10%, and said second factor is defined as compensation provided by a dispersion-compensation device having optical loss equal to or smaller than a gain of said module.

39. An optical-fiber communication system allowing first and second sites to make optical communication therebetween, comprising:

(a) a first module comprised of a module defined in claim 13; and

(b) a second module comprised of a module defined in claim 17,

wherein said first optical input/output line of said first module is optically connected to said first optical input/output line of said second module through a first optical fiber,

said second optical input/output line of said first module is optically connected to said first site through a second optical fiber,

said second optical input/output line of said second module is optically connected to said second site through a third optical fiber, and

dispersion compensation in said device is equal to smaller one of first and second factors wherein said first factor is defined as wavelength dispersion stored in a signal light in said first and second optical fibers, with an error of about 10%, and said second factor is defined as compensation provided by a dispersion-compensation device having optical loss equal to or smaller than a gain of said module.